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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/230,069	04/25/2000	MORDECHAI SEGAL	299.004US2	4909

23494 7590 08/13/2003

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EXAMINER

LUGO, DAVID B

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/230,069

Applicant(s)

SEGAL ET AL.

Examiner

David B. Lugo

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,15,17 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 7-14,18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/23/03 has been entered.

### ***Response to Arguments***

2. Applicant's arguments filed 5/23/03, with respect to the rejection(s) of claim(s) 1-22 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art references.

### ***Oath/Declaration***

3. The declaration is defective because the signature of the second named inventor, Ofir Shalvi, is in pencil, and is therefore not in permanent ink, as required under 37 CFR 1.52(a). The signature is not lightly written in black ink as Applicant contends and warrants correction.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. Claims 1 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Hulyalkar et al. U.S. Patent 5,841,484.

6. Regarding claims 1 and 20, Hulyalkar et al. disclose a communications system with a blind equalizer in Fig. 5 where a front end unit (65, 70) performs A/D conversion, demodulation and timing control, a digital equalizer connected to the front end and comprising a first filter 80 and a second filter 85 is provided to blindly equalize the signal for improved performance when both interference and noise are present (col. 5, lines 42-48) and helps remove inter symbol interference, and a symbol to bit converter connected to the filter as shown in Fig. 5.

7. Claims 1, 4, 15, 20 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by de Lantremange U.S. Patent 5,970,093.

8. Regarding claims 1 and 20, de Lantremange discloses an adaptively equalized self-recovering receiver in a communications system shown in Fig. 1 comprising front end unit (20, 24) for performing A/D conversion, demodulation and timing control, a digital equalizer connected to the front end connected to the front end and comprising a first filter 32 and a second filter (Fig. 1B) for reducing noise and intersymbol interference without training data, and inherently comprising a symbol to bit converter for converting the symbol information to a digital bitstream.

9. Regarding claim 4, de Lantremange disclose in Fig. 1B that the second filter comprises a phase rotator 42.

10. Regarding claim 15, de Lantremange shows that the modulated signal is a QAM signal.

11. Regarding claim 22, the receiver is used with a cable television infrastructure.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 6, 17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Lantremange.

14. Regarding claim 6, de Lantremange discloses that the first filter comprises an FIR filter, but does not state that its taps are adjusted so its output power is minimized.

15. However, it would have been obvious to one of ordinary skill in the art to minimize the output power to reduce energy consumption thereby reducing costs.

16. Regarding claim 17, de Lantremange discloses an adaptively equalized self-recovering receiver in a communications system shown in Fig. 1 where A/D conversion and demodulation are performed, the signal is pre-equalized 28, the pre-equalized signal is adaptively equalized to reduce the ISI without the use of training data, and where the complex valued symbol signal is converted to a digital signal. In the receiver of de Lantremange, the signal to conversion to baseband is performed prior to A/D conversion. However, one of ordinary skill in the art would recognize that the A/D conversion may be performed prior to converting the signal to baseband as a matter of design choice. Further, one of ordinary skill in the art would recognize that the conversion of the received into quadrature components may be performed by multiplying the digital signal with sine and cosine signals to extract the quadrature information as is well known in the art.

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17. Regarding claim 21, use of the communication receiver in a digital subscriber loop of a telephone network does not patentably distinguish over de Lantremange.

18. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over de Lantremange in view of White U.S. Patent 4,005,426.

19. Regarding claim 2, de Lantremange does not disclose that the first filter operates to reduce the eigenvalue spread of the input signal.

20. White discloses an adaptive signal preprocessor that reduces eigenvalue spread, as stated in column 5 lines 40-44.

21. It would have been obvious to one of ordinary skill in the art to use a signal preprocessor that reduces eigenvalue spread as taught by White, in the receiver of de Lantremange to allow the receiver to settle quickly, as stated by White in column 5 lines 40-44.

22. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over de Lantremange in view of Nikias et al. U.S. Patent 5,282,225.

23. Regarding claim 5, de Lantremange discloses that the second filter comprises a feedback network for removing ISI as shown in Fig. 1B, but does not disclose that it is a nonlinear feedback network.

24. Nikias et al. disclose an adaptive equalizer with a nonlinear feedback network in Fig. 5A. It would have been obvious to one of ordinary skill in the art to use the nonlinear feedback network taught by Nikias et al. in the equalizer of de Lantremange in order to provide a rapid adjustment of the equalizer coefficients without using a training sequence (see abstract).

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***Allowable Subject Matter***

25. Claim 16 is allowed.
26. Claims 7-14, 18 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David B. Lugo** whose telephone number is **(703) 305-0954**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

dbl  
8/8/03

  
**STEPHEN CHIN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**